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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,054	11/21/2001	Dean R. Dodge	1316N-001660	1466

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EXAMINER	
BURCH, MELODY M	
ART UNIT	**PAPER NUMBER**
3683	

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/990,054	DODGE ET AL.	
	Examiner	Art Unit	
	Melody M. Burch	3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5042624 to Furuya et al. in view of US Patent 4964493 to Yamaura et al.

Re: claim 1. Furuya et al. show in figures 1 and 3 a damper comprising: a pressure tube 1 forming a working chamber 1a,1b; a reservoir tube 6 disposed around the pressure tube, the reservoir tube forming a reservoir chamber 7 between the pressure tube and the reservoir tube, a base valve assembly 4 disposed between the working chamber and the reservoir chamber for regulating flow of damping fluid in a first direction between the working chamber and the reservoir chamber, the base valve assembly comprising: a valve body 4f defining a fluid passage 402,403; a first valve disc 4e disposed adjacent the valve body for closing the fluid passage, the first valve disc having an outside edge and a central axis; a second valve disc 4d disposed adjacent said first valve disc, the second valve disc having an outer edge supporting the first valve disc at a position between the outside edge and the central axis of the first valve disc, but does not specifically disclose that the outer edge of the second valve disc is chordal.

Yamaura et al. teach in figure 2 the use of a damper having a second valve disc 144 which is disposed adjacent to a first valve disc 138 via element 142, the second valve disc having an outer edge shown in the area of element number 158 supporting the first valve disc at a position between the outside edge and a central axis of the first valve disc (during large deflections of element 138). Yamaura et al. particularly teach in figure 4 the use of the outer edge of the second valve disc being a chordal edge as shown in the area of element number 162.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the outer edge of the second valve disc of Furuya et al. to have included a chordal outer edge, in view of the teachings of Yamaura et al., in order to provide a pivot edge for the first valve disc to achieve a desired damping force as best determined by routine experimentation.

Re: claim 2. Furuya et al. show in figure 1 a piston 5 dividing the working chamber into an upper portion 1a and a lower portion 1b the base valve assembly being disposed between the lower portion of the working chamber and the reservoir chamber.

Re: claim 3. Furuya et al. show in figure 1 the base valve comprising a pressure valve 4h,4g regulating the damping fluid in a second direction.

3. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 4076276 to Wijnhoven et al. in view of US Patent 4964493 to Yamaura et al.

Re: claim 1. Wijnhoven et al. show in figure 2 a damper comprising: a pressure tube 24 forming a working chamber or portions above and below element 22; a reservoir tube 26 disposed around the pressure tube, the reservoir tube forming a

reservoir chamber 28 between the pressure tube and the reservoir tube, a base valve assembly 38 disposed between the working chamber and the reservoir chamber for regulating flow of damping fluid in a first direction between the working chamber and the reservoir chamber, the base valve assembly comprising: a valve body 40 defining a fluid passage 48,54; a first valve disc 96 disposed adjacent the valve body for closing the fluid passage, the first valve disc having a circular outside edge and a central axis; a second valve disc 102 disposed adjacent said first valve disc, the second valve disc having an outer circular edge supporting the first valve disc at a position between the circular outside edge and the central axis of the first valve disc, but does not specifically disclose that the outer edge of the second valve disc is chordal.

Yamaura et al. teach in figure 2 the use of a damper having a second valve disc 144 which is disposed adjacent to a first valve disc 138 via element 142, the second valve disc having an outer edge shown in the area of element number 158 supporting the first valve disc at a position between the outside edge and a central axis of the first valve disc (during large deflections of element 138). Yamaura et al. particularly teach in figure 4 the use of the outer edge of the second valve disc being a chordal edge as shown in the area of element number 162.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the outer edge of the second valve disc of Wijnhoven et al. to have included a chordal outer edge, in view of the teachings of Yamaura et al., in order to provide a pivot edge for the first valve disc to achieve a desired damping force as best determined by routine experimentation.

Re: claim 2. Wijnhoven et al. show in figure 1 a piston 22 dividing the working chamber into an upper portion and a lower portion the base valve assembly being disposed between the lower portion of the working chamber and the reservoir chamber.

Re: claims 3 and 5. Wijnhoven et al. show in figures 2 and 3 the base valve comprising a pressure valve 60 regulating the damping fluid in a second direction.

Re: claim 4. Wijnhoven et al. show in figure 2 a damper comprising: a pressure tube 24 forming a working chamber portions above and below element 22; a piston 22 disposed within the working chamber, the piston dividing the working chamber into an upper working chamber and a lower working chamber; a reservoir tube 26 disposed around the pressure tube, the reservoir tube forming a reservoir chamber 28 between the pressure tube and the reservoir tube; a base valve 38 assembly disposed between the lower working chamber and the reservoir chamber for regulating flow of damping fluid in a first direction between the lower working chamber and the reservoir chamber, the base valve assembly comprising: a low speed valve movable between a closed position and an open position, the low speed valve including a first valve disc 96 having an outside edge and a central axis and a second valve disc 102 having an outer edge defined by an outer circular edge, the second valve disc supporting the first valve disc along the edge at a position between the outside edge and the central axis of the first valve disc; and a mid/high speed valve movable between a closed position and an open position, the mid/high speed valve comprising the first and second valve disc as shown in figure 5, but does not specifically disclose that the outer edge of the second valve disc is chordal.

Yamaura et al. teach in figure 2 the use of a damper having a second valve disc 144 which is disposed adjacent to a first valve disc 138 via element 142, the second valve disc having an outer edge shown in the area of element number 158 supporting the first valve disc at a position between the outside edge and a central axis of the first valve disc (during large deflections of element 138). Yamaura et al. particularly teach in figure 4 the use of the outer edge of the second valve disc being a chordal edge as shown in the area of element number 162.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the outer edge of the second valve disc of Wijnhoven et al. to have included a chordal outer edge, in view of the teachings of Yamaura et al., in order to provide a pivot edge for the first valve disc to achieve a desired damping force as best determined by routine experimentation.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5937976 to Grundei in view of Yamaura et al. Grundei shows in figure 1B a damper comprising: a pressure tube13 forming a working chamber 13a,13b; a piston 5 disposed within the working chamber, the piston dividing the working chamber into an upper working chamber 13a and a lower working chamber 13b; a piston valve assembly 1 attached to the piston for regulating flow of damping fluid between the upper working chamber and the lower working chamber, the piston valve assembly comprising: a low speed valve movable between a closed position and an open position, the low speed valve including a first valve disc 27 having an outside edge and a central axis and a second valve disc 29 supporting the first valve disc along an edge at a position between

the outside edge and the central axis of the first valve disc; and a mid/high speed valve movable between a closed position and an open position, the mid/high speed valve comprising the first and second valve disc to the same extent as Applicant's, but does not specifically disclose that the outer edge of the second valve disc is chordal.

Yamaura et al. teach in figure 2 the use of a damper having a second valve disc 144 which is disposed adjacent to a first valve disc 138 via element 142, the second valve disc having an outer edge shown in the area of element number 158 supporting the first valve disc at a position between the outside edge and a central axis of the first valve disc (during large deflections of element 138). Yamaura et al. particularly teach in figure 4 the use of the outer edge of the second valve disc being a chordal edge as shown in the area of element number 162.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the outer edge of the second valve disc of Grundei to have included a chordal outer edge, in view of the teachings of Yamaura et al., in order to provide a pivot edge for the first valve disc to achieve a desired damping force as best determined by routine experimentation.

Response to Arguments

5. Applicant's arguments filed 2/3/05 have been fully considered but they are not persuasive.

Applicant argues that Yamaura et al. do not teach a single outer chordal edge. Examiner notes that Yamaura et al. state in col. 7 lines 45-47 that disc 144 can have one or more cut outs. Yamaura et al. show in figure 4 the limitation of the cut out being

in the form of a chord. Accordingly, Yamaura et al. teach the use of a disk having a single chordal cut out or chordal edge.

Applicant argues that the chordal edges of Yamaura et al. do not define a deflecting point for the first valve. Examiner notes that Yamaura et al. is used solely for the teaching of modifying a valve disc with a chordal edge. The base references already include the limitation of the second valve disc abutting the first valve disc and the limitation of the edge of the second valve disc defining a deflecting point for the first valve disc by virtue of the second valve disc abutting the first valve disc as shown in the respective base references. Although Yamaura et al. is not used for the teaching of the second valve disc edge serving a deflecting point for the first valve disc, Examiner notes that the at least one cut out of the second disc 144 of Yamaura et al. defines a deflecting point for the first disc 138 during large deflections of element 138 that exceed the height of element 142.

It is old and well-known in the art that the number and shape of cut outs in a valve disc affect the deflection of an abutting valve disc and thus the damping characteristic of fluid flow through the disc assembly. US Patent 5529154 to Tanaka teaches in figure 4a the presence of a second valve disc 19 defining a deflection point for a first valve disc 17 wherein the second valve disc has a cut out 19a. Tanaka further teaches in col. 5 lines 15-17 that the number and shape of the cut outs varies damping force.

Since Yamaura et al. teach in col. 7 lines 56-60 that the presence of at least one cut out (in the shape of a chordal edge in the case of figure 4) forms a gap that limits

fluid flow and creates a damping force, Examiner maintains that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the second disc of the base references with a single chordal edge, in view of the teachings of Yamaura et al., in order to achieve desired fluid flow and damping characteristics depending on specific applications determined by routine experimentation.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melody M. Burch whose telephone number is 703-306-4618. The examiner can normally be reached on Monday-Friday (7:30 AM-4:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on 703-308-0830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mmb
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April 6, 2005
Melody M. Bunch
4/6/05

4/13/2005

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